



Economic Impact Analysis Virginia Department of Planning and Budget

12 VAC 5-585 – Biosolids Use Regulations Department of Health January 12, 2006

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 2.2-4007.H of the Administrative Process Act and Executive Order Number 21 (02). Section 2.2-4007.H requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. The analysis presented below represents DPB's best estimate of these economic impacts.

Summary of the Proposed Regulation

The State Board of Health (board) proposes to amend the Biosolids Use Regulations to provide for resolution of disputes involving local governments and land appliers concerning permit compliance issues and provide requirements for land application site management practices including nutrient management plan requirements and extended buffer zones for surface application without incorporation.

Estimated Economic Impact

Biosolids are the treated form of the sewage sludge generated during the wastewater treatment process. Applying biosolids to crop land, strip mines, public parks, and other areas has become a common practice in the United States, which provides an effective and environmentally friendly way to dispose of wastes while simultaneously improving soil quality.

According to the National Academies' National Research Council¹, there is no documented scientific evidence of adverse human health effects from treated sewage sludge applied to land in accordance with the Environmental Protection Agency (EPA)'s regulation. However, individuals have expressed concerns about whether the land application operations on permitted sites are being adequately supervised. Opponents of the land application of biosolids have insisted that local governments enact local ordinances that are more restrictive than the state regulations. In order to protect public health and the environment from improper and unregulated disposal of sewage sludge, the board proposes an amendment to this regulations that is designed to provide a consistent and uniform set of state requirements that will ensure that biosolids are land applied in accordance with permit requirements including compliance with nutrient management plans and extended buffers to protect odor sensitive individuals.

The board proposes to add requirements for resolving enforcement disputes between permittees and localities that have adopted an ordinance for testing and monitoring land application. Currently there is no provision for resolution of local disputes concerning permit compliance. According to the proposed amendments, in the event of a dispute between a locality that has adopted a local ordinance for testing and monitoring the land application of sewage sludge and a permittee concerning the existence of a violation, the activity alleged to be in violation shall be halted pending a determination by the State Health Commissioner (commissioner).² If the activity is not halted, the commissioner may seek an injunction compelling the halting of the activity, from a court having jurisdiction. Upon determination by the Division of Wastewater Engineering of the Office of Environmental Health Services (division),³ that there has been a violation⁴ and that such violation poses an imminent threat to public health, safety or welfare, the commissioner shall commence appropriate action to abate the violation and immediately notify the chief administrative officer of any locality potentially affected by the violation. According to Virginia Department of Health (VDH), 54 complaints were received in 2005 and 68 were reported in 2004. Inclusion of provision for resolution of local disputes will help smooth and accelerate the processing of the complaints and will better

¹ "Biosolids Applied to Land: Advancing Standards and Practices", the National Academy of Sciences, 2002

² The decision of the commissioner shall be final and binding unless reversed on judicial appeal pursuant to Section 2.2-4026 of the Code of Virginia.

³ Which is the administrative unit responsible for implementing 12 VAC 5-585

⁴ Based on Sections 32.1-164.5, 32.1-164.6, or 62.1-44.19:3, of the Code of Virginia, or any regulation promulgated under those sections.

protect the public health and the environment from improper and unregulated disposal of sewage sludge.

In order to mitigate excessive odors, the proposed amendments state that surface incorporation may be required on cropland by VDH, or the local monitor with approval of VDH. According to VDH, on average the cost of land applying biosolids is \$34 per wet ton, while surface incorporation will cost an additional \$2 per wet ton, which indicates a 6% increase.

The proposed amendments also add requirements for extended buffer setback distances. For applications where biosolids are not surface incorporated,⁵ VDH may require extended buffer zone set back distances from odor sensitive receptors. When necessary, buffer zone setback distances from odor sensitive receptors may be extended to 400 feet or more and no biosolids shall be applied within such extended buffer zones.⁶ The land application firms may have to permit additional sites which cost \$5 per acre on average, or develop additional field storage facilities which cost \$6 per dry ton of biosolids.⁷

The proposed amendments provide for requirements concerning compliance with nutrient management plans. According to the proposed amendments, a nutrient management plan prepared by a certified nutrient management planner is to be developed for all application sites, prior to biosolids application. And a nutrient management plan approved by the Department of Conservation and Recreation (DCR) will be required for land application more frequently than once every three years at greater than 50% of the annual agronomic rate⁸ on applications sites as well as on sites owned or operated in conjunction with a confined animal feeding operation.

According to the “Nutrient management Training and Certification Regulations” (4VAC5-15), the nutrient management plan is a plan prepared by a Virginia certified nutrient management planner to manage the amount, placement, timing, and application of manure, fertilizer, biosolids, or other materials containing plant nutrients in order to reduce pollution nutrient loss to the environment and to produce crops. Currently an operation plan is required for all sites which provides comprehensive description of the operation including biosolids

⁵ According to VDH, surface incorporation can not be easily applied on all sites.

⁶ The commissioner may impose standards and requirements that are more stringent when required to protect public health and the environment, or prevent nuisance conditions from developing, either prior to or during biosolids use operations.

⁷ Source: VDH.

⁸ Agdictionary by Colorado State University: Agronomic rate is a rate of nutrient application onto a field so that the amount of nitrogen required by a crop to grow is available, but the amount of nutrients that pass through the soil below where they are used by plants or into groundwater is minimized or non-existent.

source(s), quantities, flow diagram, site description, crop utilized, application rates and methodology of biosolids handling for application periods. A nutrient management plan as approved by DCR is required only for sites that are applied more frequently than once every three years at agronomic rate and confined animal feeding operation sites.^{9 10}

Requirement of nutrient management plans for all sites will cause an increase in cost for permitting infrequent application sites and all frequent below agronomic rate¹¹ application sites. The estimated cost for developing nutrient management plans is \$2.5 per acre.¹² However, according to VDH, although not required by the current regulations, most of the sites out of the 50,000 acres applied each year, have a nutrient management plan prepared. Therefore, the firms will need to have the nutrient management plans updated and will likely not incur significant cost increases. For sites that will be applied more than once every three years at greater than 50% of annual agronomic rate and sites owned or operated in conjunction with a confined animal feeding operations, a DCR approved nutrient management plan will be required prior to permit applications, which will lengthen the processing time of permit applications. Moreover, the “Nutrient Management Training and Certification Regulations” has recently been amended¹³ and will be more stringent in terms of nutrient application rate and application timing, therefore, the land appliers might have to permit additional sites and develop additional field storage facilities, which will cost \$5 per acre and \$6 per dry ton, respectively.

In sum, requirement of surface incorporation and extended buffer setback distances will mitigate excessive odors from biosolids applications and protect odor sensitive receptors. Amendments concerning the compliance with nutrient management plans will reduce nutrient loss from land to ground and surface waters from the land application of biosolids and will better protect the public health and the environment. And the development of state requirements will help improve the credibility of the VDH permit program and prevent any extended litigation that may be brought by permitted entities concerning compliance with local government ordinances that restrict or effectively ban land application of biosolids on permitted sites.

⁹ Confined animal feeding operation means: (i) domestic livestock have been, are, or will be stabilized or confined and fed or maintained for a total of 45 days or more in any 12-month period; and (ii) crops, vegetation, forage growth or post-harvest residues are not sustained over any portion of the operation site.

¹⁰ DCR approval is required before land application and can be after the permit applications.

¹¹ Frequent below agronomic rate application sites means sites that are applied more frequently than once every three years at less than 100% of agronomic rate.

¹² Source: VDH

On the other hand, the proposed amendments will cause a projected cost of two man-years of staff time at a cost of \$120,000 annually for VDH. The proposed requirement of surface incorporation may increase costs for the land application firms by 6%. Amendments concerning compliance with nutrient management plan and extended buffer zones for surface application may cause the firms to obtain permits for additional sites and develop additional field storage facilities, which will cost \$5 per acre and \$6 per dry ton, respectively. According to VDH, currently 50,000 acres are applied each year and there will be significant increase in the amount of permitted sites needed, which is not available. VDH has estimated that up to 30 additional field storage facilities may be needed to serve the existing permitted land application sites, which will result in an increase in cost of \$1.5 million. However, the 10 land application firms will likely be able to pass on much of this cost to the generators of biosolids, which are typically local governments.¹⁴

Businesses and Entities Affected

The proposed requirement of surface incorporation may increase costs for the land application firms by 6%. The 10 land application firms may have to obtain permits for additional sites and develop additional field storage facilities, which will increase their cost and commensurately reduce their profits.

Localities Particularly Affected

The proposed amendment particularly affects the 52 counties where VDH biosolids permits have been issued.

Projected Impact on Employment

The proposed amendment may have a small negative impact on employment for the 10 land application firms. The increase in cost will reduce their profits and may result in a small number of people being laid off.

Effects on the Use and Value of Private Property

The proposed regulation may have a negative impact on the use and value of private properties for the 10 land application firms because of the increased costs and reduced profits.

¹³ Finalized in November, 2005.

On the other hand, the proposed amendments will mitigate excessive odors and reduce nutrient loss from land to ground and surface waters from biosolids land applications. Therefore, the proposed amendment may have a positive impact on the value of the residential properties on or surrounding the application sites.

Small Businesses: Costs and Other Effects

According to VDH, all of the ten land application companies are small businesses with fewer than 500 employees. Thus all costs mentioned earlier apply.

Small Businesses: Alternative Method that Minimizes Adverse Impact

The proposed amendment is designed to provide a consistent and uniform set of state requirements that will ensure that biosolids are land applied in accordance with permit requirements. Failure to provide specific state requirements as requested will likely result in local adoption of ordinances with varying non-uniform requirements, which could have significant financial impacts on the regulated entities and result in court challenges leading to expensive litigation. Thus there will be no alternative method that will have a smaller adverse impact.

¹⁴ The ten application firms will likely not be able to pass on this cost to the generators until the current contract expires and new negotiation starts.